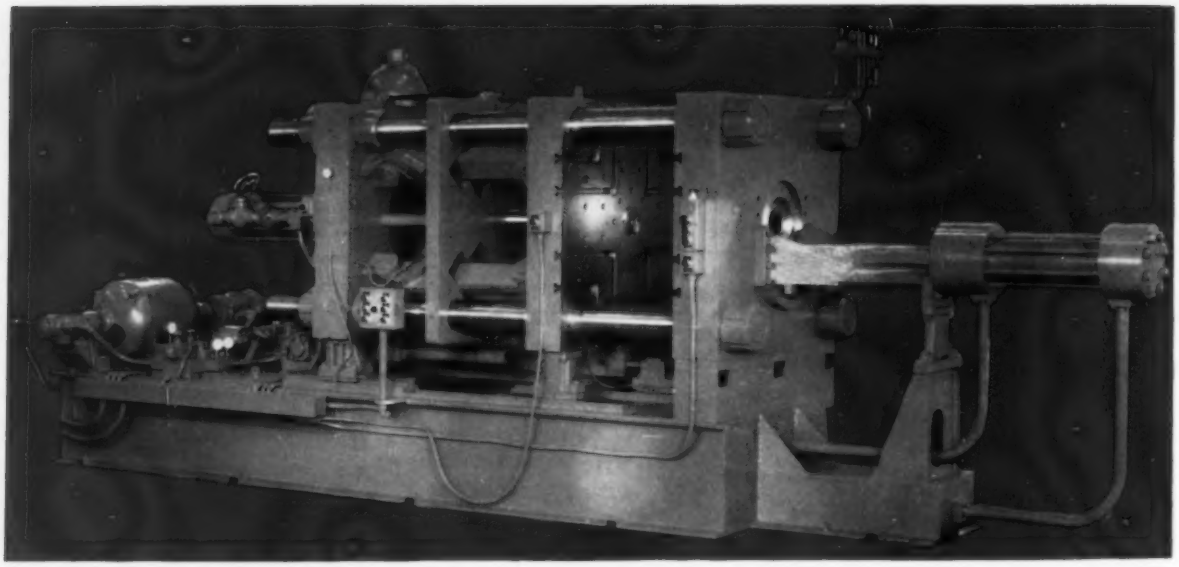
DIE CASTING ENGINEER

September 1958

PUBLICATION OF THE SOCIETY OF DIE CASTING ENGINEERS



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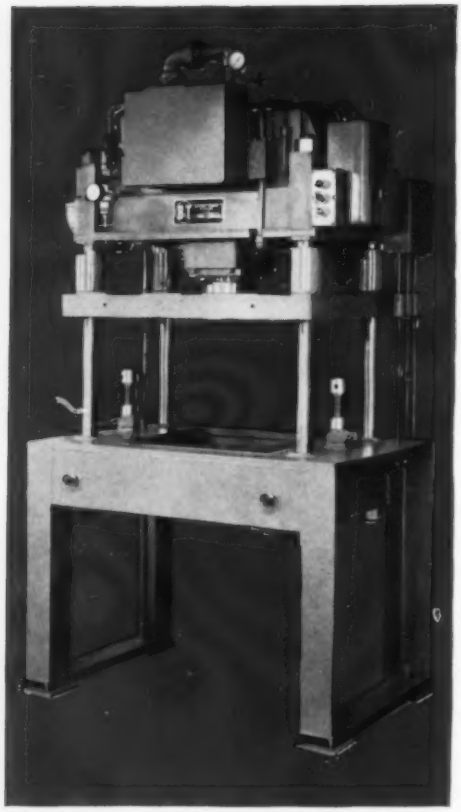

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VOLUME 2
NUMBER 3
SEPTEMBER, 1958

DIE CASTING ENGINEER

Official Publication of
THE SOCIETY OF DIE CASTING ENGINEERS, INC.

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DEPARTMENTS

COVER

An aerial view of Detroit's convention hall and exhibits building, part of the beautiful civic center being developed along the shores of the Detroit River. Dynamic Detroit, home of Chapter 1 and SDCE National Headquarters.

The DIE CASTING ENGINEER is published quarterly by The Society of Die Casting Engineers, Inc.—a society for the improvement and dissemination of the knowledge of the arts and sciences of die casting, the finishing of metals, and the allied arts. The DIE CASTING ENGINEER offers a concentrated coverage of management and engineering in the die casting and directly related industries.

Only advertising pertaining to die casting and finishing of metals and the allied arts is acceptable. The Society reserves the right to reject any advertising deemed objectionable for any reason what-so-ever.

Subscription rates are as follows: SDCE members—included in membership dues; Non-members—$6.50 per year; Single copies—$1.75; Foreign countries—$8.00 per year.

The Society of Die Casting Engineers and its editorial staff *do not necessarily endorse signed articles or statements appearing in the* DIE CASTING ENGINEER.

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Parting Line

A Message from the President

Fellow SDCE Members:

At the beginning of a new Society year, I wish to take this opportunity to report on the growth of your society and its plans for the future.

It is with pride that I note a new high in membership, an improved financial position, and an extremely bright future for die casting and for the Society.

As an indication of the tremendous interest in the Society, all chapters were represented at a recent meeting of your National Board of Directors in Detroit. Many items pertinent to the continuing growth and future of the Society were discussed and resolved. Among these items was a complete examination of the operation of the DIE CASTING ENGINEER where again we reaffirmed our editorial policy which is that the publication will not favor one company over another, and that the Editorial Review Board will carefully examine all material submitted to the DIE CASTING ENGINEER for publication.

The National Standards Committee of the Society has been very active. The committee is developing standards for rating the clamping capacity of die casting machines. Different methods of using the strain-gage test have been proposed, but to date none has been adapted. Any proposals will be thoroughly scrutinized by the SDCE before its acceptance as a standard.

Plans are underway for adding new chapters in such centers as St. Louis, Los Angeles, and Ontario, Canada. A record number of new individual, sustaining, and company members is also anticipated.

As National President, I take pride in being part of such a robust organization and know that you share with me in my hopes for the successful future of our Society.

Cordially,
SOCIETY OF DIE CASTING ENGINEERS
HARRY CAGIN, *President*

Dear Reader:

As the new editor-in-chief I should like to take this opportunity to congratulate John R. Zurbrick, who has so ably edited the DIE CASTING ENGINEER from the time of its inception, for a difficult job well done. John has resigned his post as editor-in-chief and is now in the United States Air Force. Upon his return from the Service he will go to work for a leading publishing company. We wish him well.

The Board of Directors of the Society of Die Casting Engineers took action at their September meeting to appoint an Editorial Review Board for the publication. This Board will review all articles prior to publication. The Board is composed of Richard P. Baribault of the Aluminum Company of America, John Lapin of Saginaw Bay Industries, and Louis Pedicini of the Congress Die Casting Division, the Tann Corporation. Your editor is looking forward to working with this fine committee.

I urge those of you who have reports, information, or papers dealing with die casting and related subjects, which you feel would be of interest to our readers, to drop me a line. I am sure that we can get together and work up some fine articles which would appear under your name.

WELLES JATHO
Editor-in-Chief

CORE RETAINERS . . .

by HEINZ WERNECKE

RETAINING CORES IN DIE INSERTS or core slides often proves to be a difficult problem. Crowded conditions at the rear of the die, the presence of water lines in the core area, or the close proximity of one core to another call for ingenuity on the part of the designer.

This article presents a number of very basic methods for retaining cores. The examples shown are "idea starters" and, with slight modifications or refinements, one of them will probably solve your problem.

Designs shown in Figures 1, 3, 8, 9, 14, and 16 may be used when water lines pass to the rear of the core. Non-rotating cores are shown in Figures 2, 8, 12, 14, and 15. You will note that a number of the cores shown are self-cleaning.

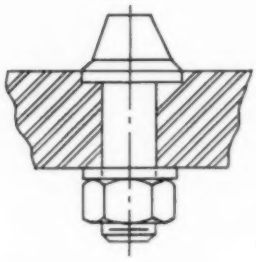


Fig. 5 Shank end of this headed type core is threaded and retained by a nut. Core is semi-self-cleaning because flash can go only to predetermined depth.

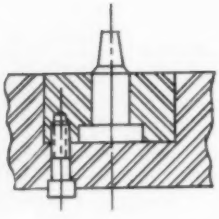


Fig. 1 Core retained in insert. Insert held in die block by cap screws.

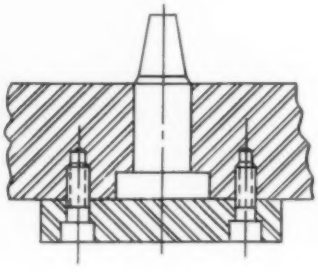


Fig. 3 Plate retainer with cap screws. If rotation is a problem, flange may be flatted and core keyed to insert.

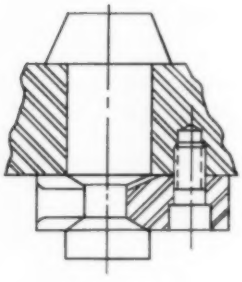


Fig. 6 Modified C-washer type. Self-cleaning. Short means of attachment often used when crowded condition exists at rear of die.

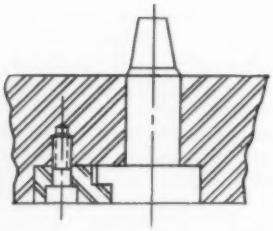


Fig. 2 Key and cap screw core retainer. Maintains angularity of core by preventing rotation.

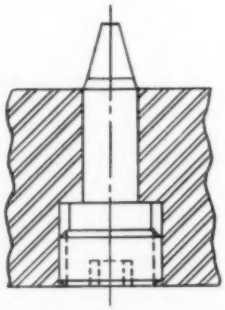


Fig. 4 Core held by socket head set screw. An extra locking set screw is often added. This type is easily serviced.

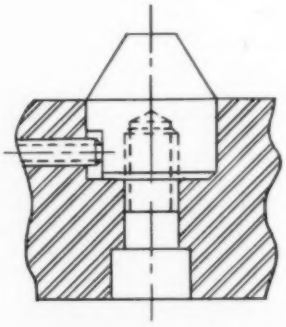


Fig. 7 Core tapped and retained by socket head cap screw. Addition of dowel pin or key would prevent rotation when installing or removing core.

. . . Basic Methods or "Idea Starters"

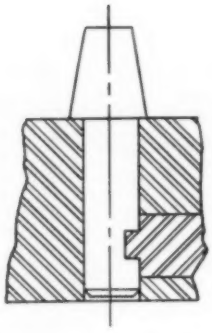


Fig. 8 Key retainer held by cap screws which flank core. Method can be used when several cores are located on very close centers. Dowel pin or taper pin can be used instead of key.

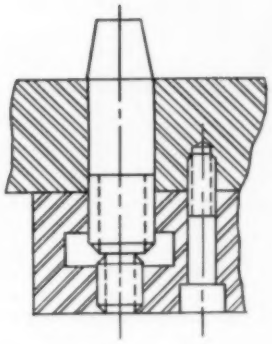


Fig. 11 Core made of drill rod and held by set screw lock with cap screw retainer. Core is adjustable for height.

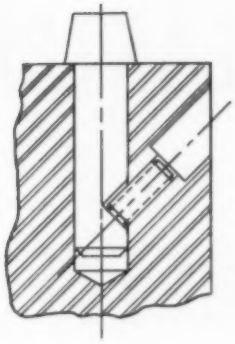


Fig. 14 Core retained by set screw at an angle. Used when rear of insert is extremely crowded or inaccessible.

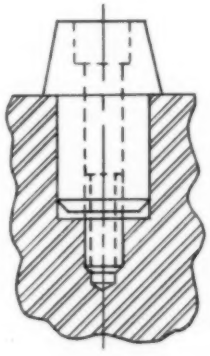


Fig. 9 Last resort method because hex socket of cap screw must be cleaned out in order to remove core. Used when core is forgotten in original design or where there is absolutely no space available.

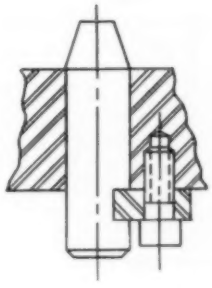


Fig. 12 Key and cap screw retainer. Core may be removed from parting line.

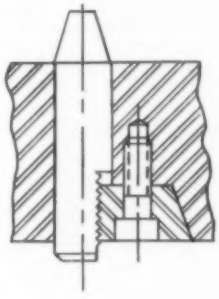


Fig. 15 Serrated core shank and serrated wedge. Height adjustment by increments of serration.

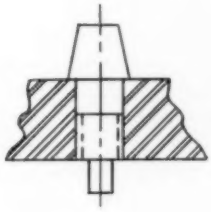


Fig. 10 Threaded shank on core with square or flats on extreme end for tightening.

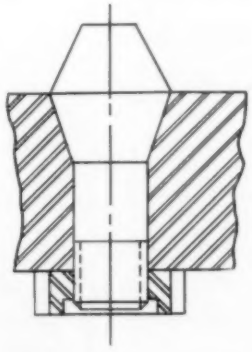


Fig. 13 Core retained by nut. Tapered seat for flash prevention. Removable from parting line.

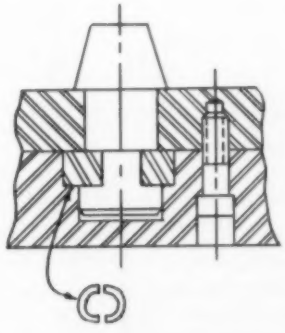
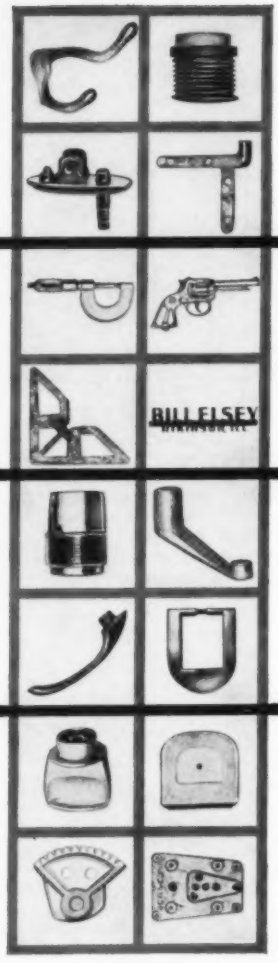


Fig. 16 Split-collar retainer. Simple design and short shank require a minimum of space.



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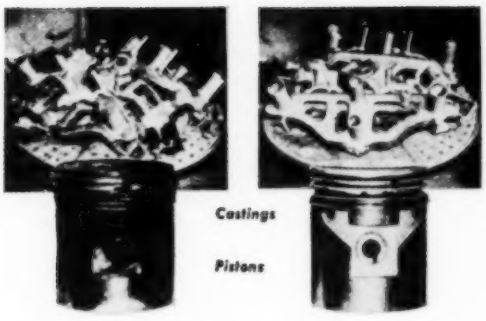
Deburring With Walnut Shells

DEAN ROCKWELL
Clifford-Rockwell Co.



A SMALL REVOLUTION is taking place in industry in the deburring of aluminum, zinc and iron castings after machining. No longer is it necessary to use costly hand-deburring methods after parts have been drilled, tapped, machined and bored.

By the use of blasting machines, both the air-blast and centrifugal types, in combination with such organic abrasives as crushed black walnut shells, ground corn cobs, etc., it has been found possible to remove light flashing, small burrs and fine machining edges which, if done by hand, would make the cost prohibitive. In addition production rates of all parts needing deburring can be kept in balance with the demands of planning and final assembly. All parts are uniformly finished and rejects due to human fallibility are held to an absolute minimum.

Crushed black walnut shells have proven to be superior to all organic abrasives. They combine a high abrasive quality with extreme toughness and resiliency. They give long life and are friable—fracturing into pieces that constantly present fresh, sharp cutting edges.

But perhaps their finest quality is their ability to do a deburring job without peening a surface or distorting the surface structure of a part by repeated impact of the particles.

Where it is necessary to remove the burrs and preserve a machined surface (often with a fine microfinish), no inorganic abrasive should be used. Here is where products like walnut shells or corn cobs meet the need. Even with extremely high velocities these products can be safely used, leaving the original finish unaltered.

They have found their quickest reception in the automatic transmission field where the deeply channeled and recessed aluminum die cast valve body parts with their multiplicity of intersecting bores and drilled and tapped holes presented great burr-removal problems. By using the proper grade of shells, i.e., a size small enough to pass through the smallest opening, crevasse or recess, the burrs are removed from even the most complex parts. An absolute minimum of hand touch-up is necessary. Usually it is done by inspectors who are also plug-gauging as well.

Manufacturers of blasting and deburring machines have built special equipment to utilize the fine qualities of black walnut shells. This permits volume finishing of the many parts that go into the automatic transmissions.

Not only have the shells been found highly satisfactory in finishing aluminum die castings but also the many ferrous parts such as gears, splines, housings, cases, etc., that go into a transmission. Originally, it was believed that the shells would remove machining burrs only from comparatively brittle gray iron castings, but now several manufacturers of transmissions have found black walnut shells nearly as satisfactory for the deburring of malleable and perlitic iron, and in some cases for deburring steel gears.

Again the advantages are that the shells remove the burrs without peening, distorting, or affecting a machined surface. And, if properly engineered, all burrs are removed and all parts uniformly finished.

Presently, they are finding acceptance in a new die castings area that involves both zinc and aluminum castings used in carburetors, distributors, horns, etc., where rapid removal of flash and heavy loose burrs is desired.

One other field where they are used successfully is the blasting of plastics to remove the flash and burrs.

Crushed black walnut shells have low absorptive qualities, present no unusual fire hazard, produce no static electricity and are comparatively cheap and abundant. They are widely used in tumbling, both wet and dry, but it is in the dry-blasting of die-castings that they have really come into their own. ■ ■ ■

After 40 months of service in water glycol type Houghto-Safe fluid, these rings and vanes show no excessive wear or corrosion.

WATER GLYCOL HYDRAULIC FLUIDS

PUMP RINGS AND VANES "LOOK LIKE NEW" AFTER THREE YEARS IN WATER GLYCOL HYDRAULIC FLUID

E. F. HOUGHTON & CO.

Our December, 1957 issue carried an article entitled "Fire Resistant Hydraulic Fluids" by John Mathe, Lubrication Engineer of E. F. Houghton & Co. In it he outlined the characteristics of the aqueous, synthetic, and emulsion types of fluids. His article stressed the obvious safety advantage inherent in these hydraulic fluids.

This article deals with the experience of a user of the water-glycol type over an extended period of time and mentions some advantages, other than fire resistance, which are credited to its use.

The Editor

THE HIGH DEGREE of lubricity which can be obtained in a water glycol type of synthetic hydraulic fluid has been illustrated by the "like new" appearance of parts after more than three years of regular hydraulic service. These parts (vanes and rings) were recently removed from the hydraulic pump of a production die casting machine at the Philadelphia plant of the Electric Storage Battery Company.

The fluid which provided this wear resistance is Houghto-Safe No. 620, a fire resistant type supplied by E. F. Houghton & Co. Such fluids are in wide use in die casting machines, where the combination of an open flame and a pot of molten metal presents a double fire hazard should the machine develop a hydraulic leak or a fluid line rupture. But inasmuch as Exide's Philadelphia plant had never been troubled by hydraulic fires, fire resistance was not the only consideration of the Exide engineers who were instrumental in installing the fluid.

Of equal importance were efforts to minimize the routine downtime being experienced with the die casting machine when its mineral oil hydraulic medium needed its yearly change. This operation took the machine out of production for about half a day.

The die caster, a Model D-1½ Reed-Prentice unit, of 250-ton mold closing pressure, is basic to the plant's production, turning out lead alloy grids (pot temperature about 800° F.) for a variety of Exide lead-acid storage batteries. Hydraulic pressure both clamps the dies for the shot and injects the molten metal.

But in spite of both cost and shutdown time, these oil changes were necessary. Oxidation of the oil during service formed sludge which settled to the bottom of the reservoir where a small amount got through the screens and into the rest of the hydraulic system. Periodic oil changes substituted fresh oil for the partially oxidized product.

The water glycol fluid was first installed in January of 1955 at a cost of approximately four times that of oil. Responsible plant personnel believe that this appreciably higher initial cost is more than offset by the long-run advantages of uninterrupted production, fewer maintenance man-hours, no need to change the fluid, and plant fire protection.

At the time of the water glycol installation the machine was two years old and was operating with its original packings. No changeover for these packings was required as the water glycol fluid is fully compatible with the original seals. These are still in use in the equipment.

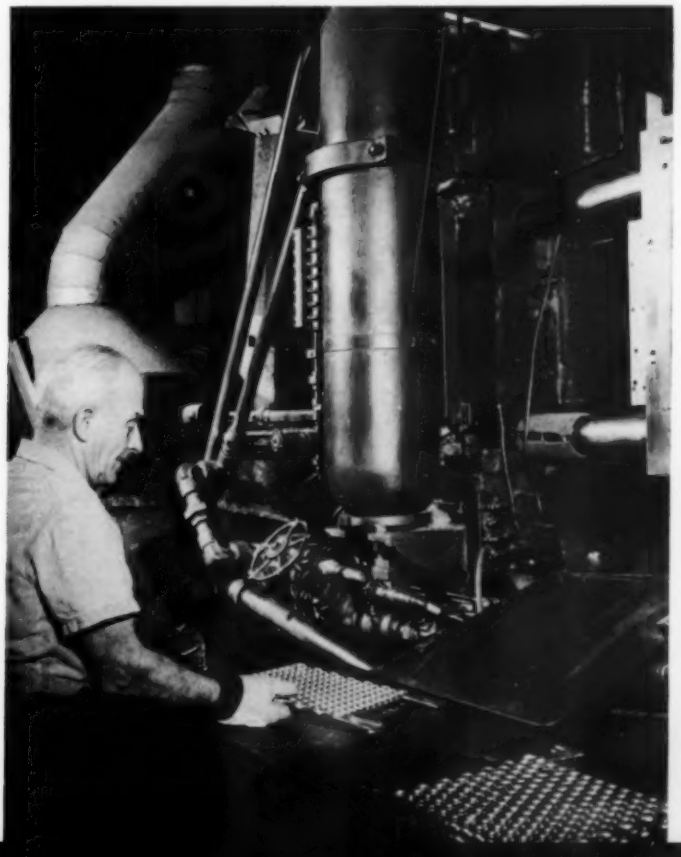
During the three years and four months of subsequent service, the Houghto-Safe fluid required about one quart of water make-up per month. A regular water addition maintained the viscosity at the recommendation of the supplier. No fluid changes or other routine maintenance was required during the service period.

A few weeks ago the die caster was shut down and the water glycol fluid was drained from the system in order that another fluid of Houghton development could be field tested. For all practical purposes, the highly stable water glycol fluid was in its original condition. There had been no oxidation after the 40-month service period. It was found that, rather than settling to act as a catalyst in the formation of sludge, dust which had been picked up in service floated on top of the fluid. Therefore, clean fluid always entered the intake screens at the bottom of the hydraulic reservoir.

When the low and high pressure combination hydraulic pump was opened, vanes and rings which had been in continuous contact with the water glycol fluid were examined for excessive wear and corrosion. There was no evidence of either condition, a fact which lends considerable support to the expanding use of the water glycol types, even in those applications where lubricity and corrosion protection are critical.

Combination of open flame and pot of molten metal makes die caster a "natural" for use of fire-resistant hydraulic fluids. There has never been a hydraulic fire in this Exide plant.

After 40 months of service in water glycol type Houghto-Safe fluid, these rings and vanes show no excessive wear or corrosion. ■ ■ ■



Combination of open flame and pot of molten metal makes the die caster a "natural" for use of fire-resistant hydraulic fluids. There has never been a hydraulic fire in this Exide plant.

Chapter News

1 DETROIT and 2 SAGINAW VALLEY

The fall season will kick-off with a dinner meeting on Tuesday, October 7th at Devon Gables. The topic will be "The Gating and Venting of Die Cast Dies," and will be in the form of a panel discussion. An excellent panel has been lined up to deal with this difficult and controversial subject. The panel is comprised of the following men:

Mr. John Lapin, Chief Engineer
Saginaw Bay Industries, Inc.
(Producers of Aluminum and Magnesium Die Castings)
Mr. Joe Johnston, Casting Superintendent
Crampton Mfg. Div. of Grand Rapids Brass
(Producers and Finishers of Zinc Die Castings)
Mr. Gene Lisek, Plant Superintendent
Univex Die Cast and Engineering Co.
(Producers and Finishers of Zinc Die Castings)

Panel moderator will be Mr. Duncan Hannah who is Co-Owner of Die Cast Designs (Designers of Die Cast Dies and Trim Dies).

Further plans of our chapter call for the publication of a comprehensive announcement of the regular meetings to be held during the 1958-59 season. This four page bulletin will be called the "Detroit Saginaw Valley Die Casting News."

—Ollie Clayton
Secretary-Treasurer

WESTERN MICHIGAN

3 Our October 14th meeting will take place at 7:00 P.M. at the Schnitzelbank Restaurant in Grand Rapids. Willard Babington, Supervisor of Metals, Bell Telephone Laboratories, will speak. His talk is entitled, "Variables in Die Casting." He plans to touch on such subjects as shot pressure, plunger speed, venting, gating, and control factors. We are expecting our usual large and enthusiastic turnout for this meeting.

—Merritt Nelson

TOLEDO

4 Mr. D. L. LaVelle of American Smelting and Refining Co. is scheduled to address our October 14th meeting. His subject is entitled "The Metallurgy of Better Aluminum Die Casting."

Guest speaker at our November 11th meeting will be Mr. C. T. Fletcher of Braeburn Alloy Steels. The subject of his talk is yet to be announced, but he will cover information which is of timely interest to die casters and die caster suppliers.

Angelo's Spaghetti House will again be the site of these 7:00 P.M. meetings and any men in our area who are connected with die casting are cordially invited to attend.

—Rolland S. Fulton
Chairman

CHICAGO

5 The June Golf Outing, helped by magnificent weather, was a great success. Most of the members present won prizes. In fact, the Society made $125.00 on the event, although it was not planned that way.

Our first membership directory has been well received by all, and has helped our treasury to the tune of $300.00. We feel that this will be an annual project with possible refinements.

Mr. Duncan M. Hannah, Sales Engineer of Die Cast Die Designs Company, will address our October 2nd meeting. His subject is "Design and Tooling Standards for Die Casting." The meeting is scheduled for 7:00 P.M. at Nielsen's Restaurant in Elmwood Park.

"The Morton Vacuum System" will be the subject of Mr. E. R. Morton's talk before our November 6th meeting. Mr. Morton is President of Morton Mfg. Company of Omaha.

Because we have great pride in belonging to the society, we have decided to pass out to all the members a lapel pin or perhaps a tie pin with the Society crest.

The nomination of officers will be held in October followed by the election in November.

Our December meeting will be another Donnybrook evening with an excellent Smorgasbord and door prizes. We still talk about last year's event.

—John H. Koller
Historian-Librarian

CLEVELAND

6 K. W. Stromberger headed the committee for our Second Annual Clambake, which was held on September 13th at Dranek's Astorhurst. Festivities started at 2:00 P.M. with baseball, football, horseshoes, etc. on the agenda.

Our October 12th meeting will feature a talk by Glen Morton of Vacuum Die Casting.

Mr. Al Trail of Vickers will speak at our November 18th meeting. He will discuss hydraulics, pumps, etc.

The meeting place for October and November has not been determined at this writing.

—R. D. Black

NEW YORK

7 Our September 24th meeting at the Hotel Governor Clinton was an excellent meeting. Mr. Larry Horn, Applications Engineer of Vickers, Incorporated, spoke on "Hydraulic Progress in the Die Casting Industry." He dealt with the Applications and maintenance of hydraulic systems in our field.

The New York committee has met off and on throughout the summer and has lined up a most interesting schedule of speakers for our 1958-59 meetings.

—Edward G. Mannerberg
Edward C. Arnao

NEW ENGLAND

18 Our October 23rd meeting will be held at the Publick House in Sturbridge, Massachusetts at 7:00 P.M. Mr. Ray Dunn of Lindberg Engineering in Chicago will be our guest speaker.

Nomination of officers for the coming year will take place at our October meeting and plans for a membership drive will be outlined.

Ernest W. Brix of Hampden Brass & Aluminum of Springfield has been appointed Secretary-Treasurer to replace A. R. McIntyre.

—Francis E. Kennedy

INDIANA

25 The first meeting of the Fall Season featured a guided tour through the Chrysler Casting plant at Kokomo on September 11th. This plant is engaged exclusively in the manufacture of aluminum die castings and has forty cold chamber machines in operation. Several machines are equipped with automatic ladling. Before the tour, dinner was served at the Casa Grande Restaurant in Kokomo.

The October 9th meeting will be held at Don's Barbecue in Anderson. Our guest speaker will be Mr. Glen Morton of the Morton Manufacturing Company of Omaha. Mr. Morton will show and narrate a movie illustrating his new vacuum system and will touch upon an auto-ladle for aluminum which works with his vacuum system.

We are looking forward to many more successful meetings during the 1958-59 year and hope to work in some more plant tours.

—James A. Poat

NOMINATING COMMITTEE NAMED

Merritt J. Nelson of our Western Michigan Chapter is Chairman of the SDCE National Elections nominating committee. Serving with Mr. Nelson are John B. Fisher of the Indiana Chapter and Joseph Schmidt of the Chicago Chapter.

CLEVELAND WINS CONTEST

One year ago the National Offices of SDCE announced that the chapter which obtained the most sustaining company members would be awarded a prize. Our Cleveland Chapter was declared the winner at the last Board of Directors Meeting.

— NEWS OF INDUSTRY —

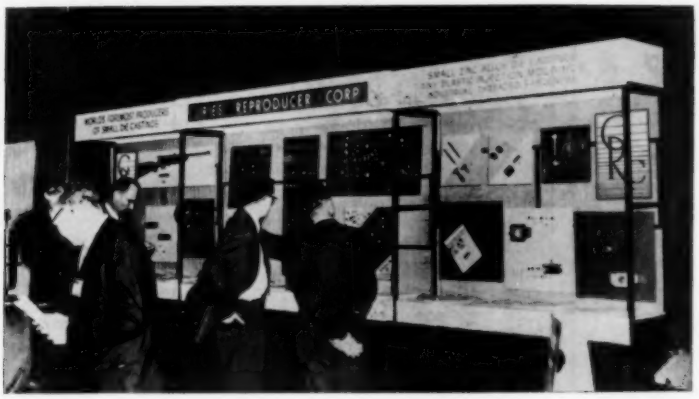
B&T INTRODUCES NEW TRIM PRESS

B & T MACHINERY Company of Holland, Michigan, announces a new addition to their line of fast-acting air-hydraulic trim presses for trimming die castings, swaging, stamping, blanking, forming, drawing, and shearing.

The latest model, shown in the accompanying photo, is a 35-ton press with 48″ x 40″ free working area inside of the 4″ tie bars. It has a 30″ stroke, approach speed of 1,400 inches per minute, pressing speed of 140 inches per minute, return speed of 700 inches per minute. The machine is 11 feet high and weighs 19,000 pounds.

The manufacturers state that in addition to the regular line they are also building special presses with various tonnages to meet customer requirements. Complete information may be had from the manufacturers, B & T Machinery Company, Holland, Michigan.

UNUSUAL PRODUCTS MADE BY AUTOMATIC DIE CASTING TECHNIQUES TO BE FEATURED AT GRIES REPRODUCER METAL SHOW EXHIBIT



A unique case history display, consisting of unusual examples of tiny, intricate die castings made to extremely close tolerances, will be featured at the Gries Reproducer Corporation's exhibit (Booth 550) at the forthcoming National Metal Exposition, to be held October 27-31 at the Cleveland Auditorium. Engineers and metallurgists will see at the Gries exhibit a variety of idea-provoking metal components made by such unusual techniques as the "Intercast" process—an exclusive technique developed by Gries engineers, by means of which articulated products such as hinges are die cast in one shot, fully assembled and in working condition.

NEW ELECTRO-HYDRAULIC SERVO-HOIST

A new line of rugged electro-hydraulic servo-hoists utilizing a completely new concept in industrial hydraulics is now available from Automatic Warehousing Branch, Pesco Products Div., Borg-Warner Corp., Wooster, Ohio. The new hoist extends to all industrial lifting operations the speed, controllability, power and safety characteristics of hydraulic actuation.

Designated the AWB Servo-Hoist, the new unit is available in four sizes having nominal capacities of ¼, ½, 1, and 2 tons. Material can be raised up to 10 feet with any of the four models.

DIE SHARPENING AND POLISHING MACHINE

A new machine recently developed by Chicago Cutting Die Company, 2333 Nelson Street, Chicago 18, Illinois, for sharpening, polishing and deburring the sharp edges of cutting dies and for polishing any inside or outside contour surfaces. It is also used for removing flashings from small die castings.

For further information, write Chicago Cutting Die Company, 2333 Nelson Street, Chicago 18, Illinois.

PEOPLE IN DIE CASTING

THE MARTIN GRINDING AND MACHINE WORKS, INC. has appointed the J. J. Jordan Associates, 15517 Mack Ave., Detroit, as exclusive representatives for the State of Michigan.

Mr. George Boullain has been named as Martin's Ohio representative. Mr. Boullain can be reached by writing Box 285, Franklin, Ohio.

JOHN D. MacKENZIE has been elected Chairman of the Board of American Smelting and Refining Company to fill the vacancy caused by the death of the late Kenneth C. Brownell. Mr. MacKenzie will continue as President of the Company.

HEINRICH LOEHR, President of Loehr Die and Mold Company, East Detroit, passed away on September 6th in Germany. Mr. Loehr was in Europe on business.

THE AMERICAN ZINC INSTITUTE, INC. has appointed Mr. James E. Zane as their Michigan representative. Mr. Zane can be reached at 54 Eason Avenue, Highland Park.

JOHN STUART SMART, JR. has been appointed General Sales Manager of America Smelting and Refining Co., it has been announced by Simon D. Strauss, Asarco's Vice President in charge of sales. Ralph L. Wilcox has been named Assistant Sales Manager.

Working directly with Mr. Strauss, Mr. Smart will be responsible for the administration of the Sales Department and for the sales of the Company's major metal products and the by-products of primary metal smelting and refining.

PEOPLE IN DIE CASTING

THE DOW CHEMICAL COMPANY has promoted Herbert H. Lyon from controller to manager of its Madison Division, Madison, Illinois. The division produces magnesium mill products.

Lyon succeeds Hubert Fruehauf, recently named manager of Dow's new magnesium products department.

J. HARRIS PHILLIPS has been appointed sales representative of Universal-Cyclops Steel Corporation in the Cleveland District Sales Office and will cover the Toledo area. Mr. Phillips graduated from the University of Pittsburgh and is a member of the American Society of Metals and the Society of Die Casting Engineers. He was most recently with the Heppenstal Company. Universal-Cyclops Steel Corporation is a leading producer of stainless steels, tool steels, and high temperature metals.

LATROBE STEEL COMPANY, Latrobe, Pennsylvania, announces two administrative changes in the company's organization.

Mr. W. G. Dahl, formerly General Sales Manager, has been appointed Vice President of Sales, and will be located at the company's main office and plant in Latrobe, Pennsylvania.

Mr. Howard M. Givens, formerly Vice President of Sales has by his request returned to the company's Miami, Florida office as Southern Regional Sales Manager.

A. MILNE & CO., INC., distributors of Tool & Special Steels have been appointed Agents for the new machineable carbide FERRO-TIC (R) produced by Sintercast Corporation of America. Milne will sell this product in Northern Illinois, Massachusetts, New Jersey, Greater New York City, Pennsylvania and West Virginia.

TWO-YEAR CERTIFICATE IN FOUNDRY TECHNOLOGY

Excellent opportunities for the study of foundry techniques in a wide variety of industrial situations are afforded students at Western Michigan University. More than 200 foundries are located within a hundred miles of the Kalamazoo campus. For information, write Industrial Technology Department, Western Michigan University, Kalamazoo, Michigan.

TRAINING COURSES IN QUALITY CONTROL

The Greater Detroit Section of the American Society for Quality Control is offering two training courses in Quality Control. Classes are being held on Monday and Tuesday evenings in the Veterans Memorial Building in Detroit. Further information can be obtained from Thomas L. Harvey, Secretary, Greater Detroit Section, A.S.Q.C. at (Ypsilanti) HUnter 2-7200, Ext. 265.

WHYCO CHROMIUM OFFERS NEW INFORMATION BULLETINS, REPORTS

A series of newly available information bulletins on barrel and rack chromium plating of small parts has been prepared for free distribution by Whyco Chromium Company, Inc., U. S. Route 8, Thomaston, Connecticut.

Included in the series is an illustrated bulletin on the firm's services and facilities; and technical progress reports called "Whyco News."

DIE CASTING SERVICE AND PERSONNEL OPPORTUNITIES

ESTABLISHED MANUFACTURER, NORTH EAST U.S. seeks sales representative. Modern medium sized plant, Zinc Die Casting, permanent mold casting, modern tool room. Commission Basis. Write Box 104.

SALESMANAGER WANTED
By Mid West Producer of Light Metal Die Castings.
Must have technical background and experience in light metal die castings. Excellent opportunity, for qualified aggressive individual with fast growing medium size company. State qualifications and experience. Write Box 107.

This section is open to everyone associated with the arts and sciences of Die Casting. The editorial staff reserves the right to reject any advertising not related to Die Casting and its allied arts.

SDCE SUPPORTING COMPANY MEMBERS

SUSTAINING MEMBERS

American Mold Engineering Co.
Atols Tool & Mold Corp.
Braeburn Alloy Steel Corp.
Cast-Master, Incorporated
Chrysler Casting Plant,
Chrysler Corporation
Clinton Machine Co.
Congress Die Casting Division,
The Tann Corporation
Crucible Steel Company of America
Cuyahoga Industries
Dodge Steel Company
Process Development Section,
General Motors Corporation
Latrobe Steel Company
Lester Engineering Co.
A. Milne and Company, Inc.
Permanent Mold Die Co., Inc.
Stroman Furnace & Engineering Co.
Reed-Prentice Division,
Package Machinery Company
Universal Die Casting Division,
Hoover Ball & Bearing Co.

COMPANY MEMBERS

All State Industries, Inc.
Aluminum Die Cast Foundries, Inc.
Atlantic Chemicals & Metals Co.
B & T Machinery Company
Briggs & Stratton Corp.
Central Die Casting & Mfg. Co., Inc.
H. Cohn & Sons
Columbia Engineering Co., Inc.
Conneaut Die Casting Company
Damen Tool and Engineering Co.
Detroit Mold Engineering Co.
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J. R. Elkins, Inc.
Girard Mfg. Company
Grand Rapids Die Casting Co.
Gries Reproducer Corp.
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Irrigation Equipment Company, Inc.
Lake Erie Engineering Co.
R. Lavin & Sons, Inc.
Lindberg Engineering Co.
Lindberg Steel Treating Co.
Martin Grinding & Machine Works, Inc.
North End Tool & Die Co.
Nu-Engineering, Inc.
Ostrom Tool Company
Owens Welding Co., Inc.
Prospect Die and Mold, Inc.
Quad-City Die Casting Company
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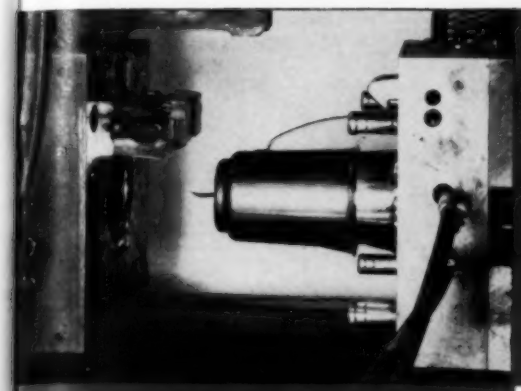
Hawthorne Works,
Western Electric Co.
Wabash Smelting Inc.
Charles Zapf & Co.

names that mean

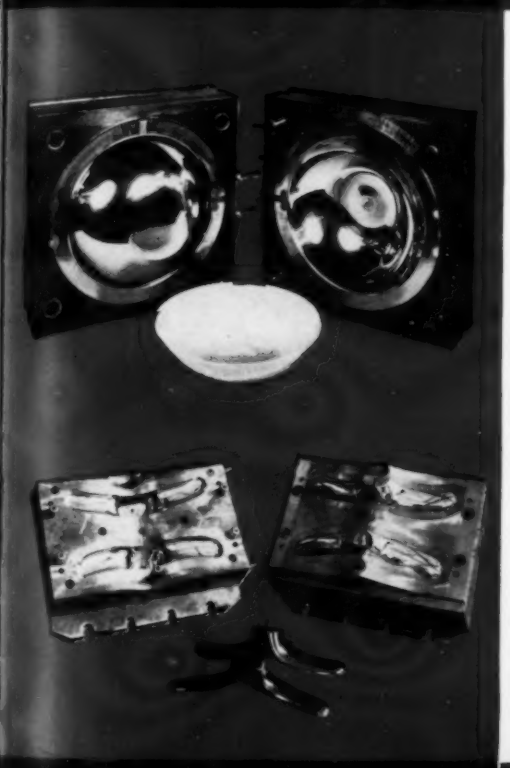
"*First Quality Guaranteed*"



DIE STEELS

for

die casting dies



MC The Mold and Cavity die steel made with particular care to permit blemish-free, highly finished surfaces. Furnished heat treated to 300 Brinell or annealed. Very deep hardening—uniform throughout large sections. Very low movement when oil quenched. For lower finishing costs and longer die life, use MC!

Speed-Cut Free-machining at 300 Brinell. Choose Speed-Cut for economy in producing backing plates, cavity plates, spacer blocks and other plastic die parts. And when you must avoid *all* movement, machine Speed-Cut after hardening—with ease!

Hotform The original 5% chromium, most widely-used die casting die steel. Will withstand extremes of service conditions—tough, strong, highly resistant to thermal shock.

Write for detailed Data Sheets

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LATROBE, PENNSYLVANIA

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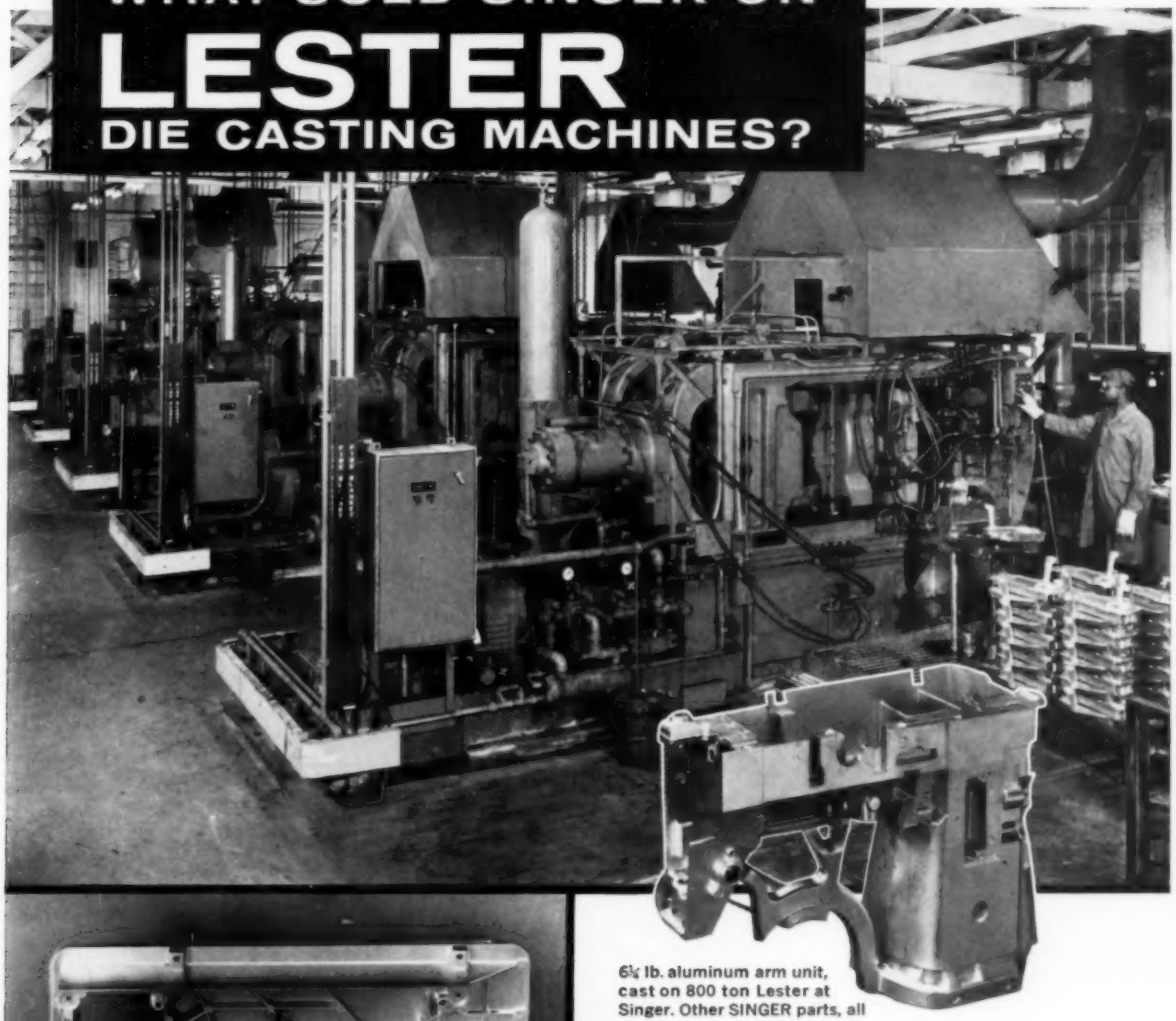
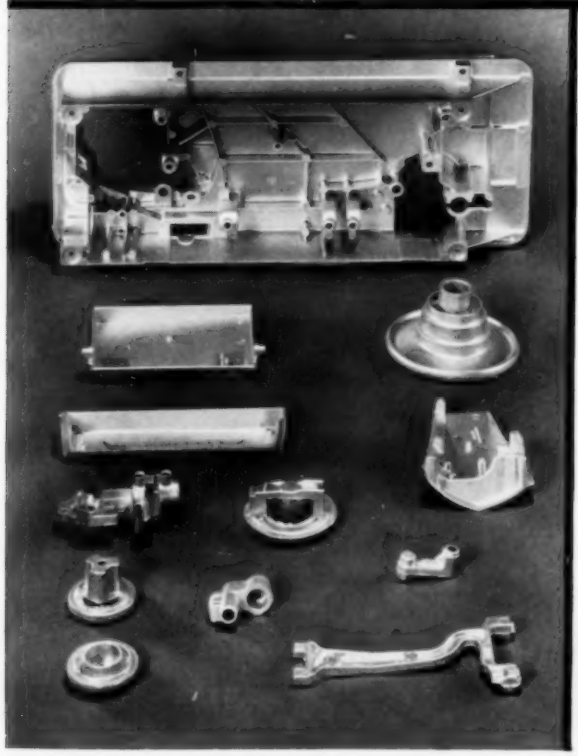
ADVERTISERS INDEX

WHAT SOLD SINGER ON LESTER DIE CASTING MACHINES?





6¼ lb. aluminum arm unit, cast on 800 ton Lester at Singer. Other SINGER parts, all cast on Lesters, shown at left.

What sold SINGER on Lesters? The basic rigidity of the one-piece frame which can be depended upon to tightly lock and keep locked even the largest of their dies, the main arm unit for their new model #401 SLANT-O-MATIC Sewing Machine. With this dependable clamp, they obtain consistent production of quality castings, with finish and density they have been otherwise unable to obtain.

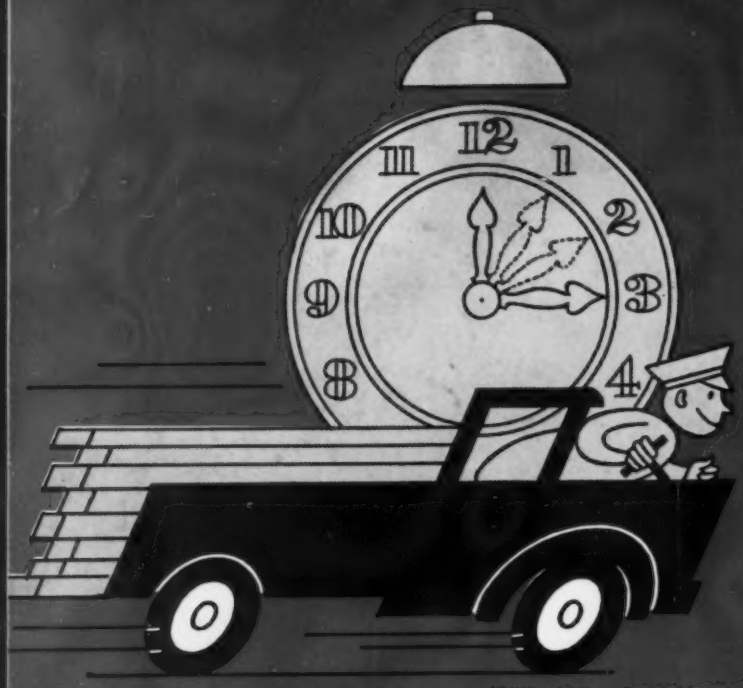
As a result, Singer has installed 15 Lester Die Casting Machines of 800 ton and 600 ton capacity in their plant in Elizabethport, New Jersey.

Detailed information on Lester Die Casting Machines is available by writing...

LESTER-PHOENIX, INC.

2716-B CHURCH AVENUE • CLEVELAND 13, OHIO

Agents in principal cities throughout the world



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1" x 2"	2" x 3"	3" x 4"	4" x 5"	5" x 6"	6" x 8"
1" x 4"	2" x 4"	3" x 5"	4" x 6"	5" x 7"	6" x 10"
1" x 6"	2" x 5"	3" x 6"	4" x 7"	5" x 8"	6" x 12"
1" x 8"	2" x 6"	3" x 8"	4" x 8"	5" x 9"	6" x 14"
1" x 10"	2" x 7"	3" x 10"	4" x 9"	5" x 10"	6" x 16"
	2" x 8"	3" x 12"	4" x 10"	5" x 12"	6" x 18"
1¼" x 2"	2" x 10"	3" x 14"	4" x 12"	5" x 14"	6" x 20"
1¼" x 4"	2" x 12"	3" x 16"	4" x 14"	5" x 16"	6" x 25"
1¼" x 6"	2" x 16"	3" x 18"	4" x 16"	5" x 18"	
1¼" x 8"			4" x 18"	5" x 20"	7" x 8"
1¼" x 10"	2½" x 3"	3½" x 4"	4" x 20"	5" x 25"	7" x 10"
1¼" x 12"	2½" x 4"	3½" x 6"			7" x 12"
	2½" x 5"	3½" x 8"	4½" x 6"	5½" x 8"	7" x 14"
1½" x 2"	2½" x 6"	3½" x 10"	4½" x 8"	5½" x 10"	7" x 16"
1½" x 4"	2½" x 7"	3½" x 12"	4½" x 10"	5½" x 12"	7" x 18"
1½" x 6"	2½" x 8"	3½" x 14"	4½" x 12"	5½" x 14"	7" x 20"
1½" x 8"	2½" x 10"	3½" x 16"	4½" x 14"	5½" x 16"	7" x 25"
1½" x 10"	2½" x 12"	3½" x 18"	4½" x 16"	5½" x 18"	
1½" x 12"	2½" x 14"		4½" x 18"	5½" x 20"	8" x 10"
1½" x 14"	2½" x 16"		4½" x 20"	5½" x 25"	8" x 12"
	2½" x 18"				8" x 14"
					8" x 16"
					8" x 18"
					8" x 20"
					8" x 25"

SQUARES

1"	2"	3"	4"	8"
1½"	2½"	3¼"	6"	10"
		3½"		

ROUNDS

½"	1"	2"	3"	4"	6"
⅝"	1¼"	2¼"	3⅛"	4⅛"	6½"
¾"	1½"	2½"	3½"	4½"	7"
⅞"	1⅝"	2⅝"	3⅝"	5"	8"
	1¾"	2¾"		5½"	10"

BILLETS

6"	8"	10"	12"	14"

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